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(54) HIGH STRENGTH HOT ROLLED STEEL SHEET EXCELLENT IN STRETCH-FLANGING PROPERTY AND ITS PRODUCTION

(57) Abstract:

PROBLEM TO BE SOLVED: To produce a thin high strength hot-rolled steel sheet of ≤ 3.5 mm sheet thickness excellent in stretch-flanging properties and to provide a method for producing it.

SOLUTION: As to this producing method, a steel slab contg., by weight, 0.05 to 0.30% C, $\leq 1.0\%$ Si, 1.5 to 3.5% Mn, $\leq 0.02\%$ P, $\leq 0.005\%$ S, $\leq 0.150\%$ Al and $\leq 0.0200\%$ N and moreover contg. one or two kinds of 0.003 to 0.20% Nb and 0.005 to 0.20% Ti is heated at $\leq 1200^{\circ}$ C and is thereafter subjected to hot rolling in such a manner that the finish rolling starting temp. is controlled to 950 to 1050 $^{\circ}$ C, and the finish rolling finishing temp. is controlled to $\geq 800^{\circ}$ C, immediately after the completion of the rolling, cooling is started, and it is continuously cooled at the average cooling rate of 20 to 150 $^{\circ}$ C/sec and is coiled at 300 to 550 $^{\circ}$ C to form a fine bainitic structure of $\leq 3.0 \mu\text{m}$ average grain size contg. no coarse grains of $>10 \mu\text{m}$ grain size.

